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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/193,928	11/17/1998	TETSUYA ATSUMI	M2009-9	2606

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EXAMINER

BLAU, STEPHEN LUTHER

ART UNIT PAPER NUMBER

3711

DATE MAILED: 01/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/193,928

Applicant(s)

ATSUMI ET AL.

Examiner

Stephen L. Blau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

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DETAILED ACTION

Continued Prosecution Application

1. The request filed on 14 March 2002 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/193,928 is acceptable and a CPA has been established. An action on the CPA follows.

Claim Rejections - 35 USC ' 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1 stands rejected and claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng in view of Kobayashi (4,682,504), JP 6-114131, and JP 9-140840.

Cheng discloses an inner layer being a first angled layer in form of bonding a first layer (Ref. No. 22b) and a second layer (Ref. No. 22c), a first angled layer being concentric with a longitudinal axis of a shaft and circular in cross section in the form of the body having successive layers placed around a mandrel (Col. 3, Lns. 1-12) and the

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shape formed having a diameter (Col. 2, Lns. 41-59), a first straight layer formed on a first angled layer (Fig. 2, Ref. No. 22a), a first straight layer being concentric with a longitudinal axis of a shaft and circular in cross section in the form of the body having successive layers placed around a mandrel (Col. 3, Lns. 1-12) and the shape formed having a diameter (Col. 2, Lns. 41-59), a second angled layer formed on a first straight layer, a second straight layer formed on a second angled in the form of there being 10-20 layers and fibers of each successive layer are 22a, 22b and 22c and as such there will be at least three sequences of the order of 22a, 22b and 22c and a second angled layer will be formed by bonding a first layer (Ref. No. 22b) and a second layer (Ref. No. 22c) (Col. 2, Lns. 64 through Col. 3, Lns. 12), a second angled layer and a second straight layer being concentric with a longitudinal axis of a shaft and circular in cross section in the form of the body having successive layers placed around a mandrel (Col. 3, Lns. 1-12) and the shape formed having a diameter (Col. 2, Lns. 41-59), and a shaft having 4 to 8 layers in the form of there being preferably 10-20 layers and fibers of each successive layer being 22a, 22b and 22c and as such there will be at least three sequences of the order of 22a, 22b and 22c and a first angled layer and a second angled layer will be formed by bonding a first layer (Ref. No. 22b) and a second layer (Ref. No. 22c). As such there will be about 7 layers.

Cheng lacks each layer extending over a length of a shaft, a second angled layer having an angle orientation and thickness effective to provide a shaft with a torsional strength of at least 120 kgf x m x degrees, and a weight of from 30-40 grams.

Kobayashi discloses a strong golfer needing a shaft with high stiffness for longitudinal bending and torsional bending (Col. 1, Lns. 13-25). JP 6-114131 discloses each layer extends over a length of a shaft (Fig. 2, Translator), and a shaft having a twisting strength of 230 kgf cm (Table of page 4). As shown in JP 6-114131, an artisan skilled in the art of manufacturing a torsional resistant and strong shaft would have selected a suitable torsional strength for a shaft in which a torsional strength of at least 120 kgf x m x degrees is included. In view of the patents of Kobayashi and JP 6-114131 it would have been obvious to modify the shaft of Cheng to have a shaft with sufficient layers of fibers oriented at an angle with respect to longitudinal axis of a shaft and thicknesses of layers such that there would be a torsional strength of at least 120 kgf x m x degrees in order to minimize errors when swinging a shaft due to the shaft having excessive twisting during the swing of a strong player causing errors at impact. In view of the patent of JP 6-114131 it would have been obvious modify the shaft of Cheng to have each layer extending over the length of a shaft in order to provide strength and stiffness along the entire length of a shaft.

JP 9-140840 discloses layers being arranged substantially concentrically about a central portion of a golf club shaft (Figs. 1 and 4-6), and a shaft weight of 10-50 grams (Derwent abstract) in order to have a shaft with good bending strength and twisting strength which is light weight (Derwent advantage). In view of the patent of JP 9-140840 it would have been obvious to modify the shaft of Cheng to have a shaft with a weight of 30-40 grams in order to have a light weight shaft which minimizes fatigue felt by a player while playing a round of golf. In addition, it would have been obvious to

modify the shaft of Cheng to have the layers arranged substantially concentrically about a central portion of a shaft in order to have more consistent performance about the circumference of a shaft.

4. Claim 21 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson (3,646,610) in view of JP 6-114131, Kusumoto, JP 9-140840, Preece and Cecka.

Jackson discloses a first angled layer (43'), a first straight layer (47') formed on a first angled layer, a second angled layer (50') formed on a first straight layer, a second straight layer (54') formed on second angled layer (Fig. 15), each layer extending over the length of the shaft (Fig. 15), fibers (Col. 2, Lns. 46-56), angled layers having fibers in opposite directions (Fig. 15), fibers of a second angled layer oriented at an angle in a range from 35-75 degrees (Fig. 15), and another embodiment of a tapered shaft having a location near a tip end having a wall thickness substantially twice the thickness of a location near a butt end (Figs. 4-5).

Jackson lacks a first angled layer and a second angled layer each being formed by bonding a first layer and a second layer, a first layer having fibers oriented at a first angle and a second layer having fibers oriented at a second opposite angle, layers effective to provide a shaft with a torsional strength of at least 120 kgf x m x degrees, a weight of from 30-40 grams, a second angled layer having a thickness in a range of from .04 to .1mm, and a first angled layer having a thickness near the small diameter

end of a shaft twice that of the thickness of the layer near the large diameter end of a shaft.

JP 6-114131 discloses each layer extends over a length of a shaft (Fig. 2, Translator), and a shaft having a twisting strength of 230 kgf cm. As shown in JP 6-114131, an artisan skilled in the art of manufacturing a torsional resistant and strong shaft would have selected a suitable torsional strength in which a torsional strength of at least 120 kgf x m x degrees is included. In view of the patent of JP 6-114131 it would have been obvious to modify the shaft of Jackson to have a shaft with sufficient layers of fibers oriented at an angle with respect to longitudinal axis of a shaft and thicknesses such that there would be a torsional strength of at least 120 kgf x m x degrees in order to minimize errors when swinging a shaft due to the shaft having excessive twisting during the swing of a strong player causing errors at impact. In view of the patent of JP 6-114131 it would have been obvious modify the shaft of Jackson to have each layer extending over the entire length of a shaft in order to provide strength and stiffness along the entire length of a shaft.

Kusumoto discloses a shaft made with fibers in the form of prepreg sheets (abstract) having a thickness not larger than .06 mm (Col. 12 Lns. 12-27). In view of the patent of Kusumoto it would have been obvious to modify the shaft of Jackson to be made of fibers in prepreg sheets in order to simplify the manufacturing process by not have to have a winding machine wrapping fibers around a mandrel. In view of the patent of Kusumoto it would have been obvious to modify the shaft of Jackson to have a shaft formed of to have a second angled layer having a thickness in a range of from .04

to .1 mm in order to provide a shaft with a sufficient amount of stiffness in the longitudinal and torsional directions.

JP 9-140840 discloses a shaft weight of 10-50 grams (Derwent abstract) in order to have a shaft with good bending strength and twisting strength which is light weight (Derwent advantage). In view of the patent of JP 9-140840 it would have been obvious to modify the shaft of Jackson to have a shaft with a weight of 30-40 grams in order to have a light weight shaft which minimizes fatigue felt by a player while playing a round of golf.

Preece discloses an angled layer formed by bonding a first angled layer with second angled layer (Fig. 1B). In view of the patent of Preece it would have been obvious to modify the shaft of Jackson to have an angled layer formed by bonding a first angled layer with second angled layer in order to simplify the manufacturing process of producing angled layers with opposite angle orientations.

Cecka discloses a tapered shaft having a tip end wall thickness substantially twice the thickness of a butt end wall thickness (Figs. 8-9). In view of the patent of Cecka it would have been obvious to modify the shaft of Jackson to have each layer twice the thickness at the tip end compared to the butt end in order to have a strong tip end to prevent the tip end from fracturing.

Response to Arguments

5. The argument that it is improper to use the reference of JP '131 to combine with the reference of Cheng since JP '131 would result in a 0 degree layer between a + theta and - theta layers is disagreed with. JP '131 was not used to show layer configuration but to show the teaching that it is known to extend layers over a length of a shaft. Cheng is quiet to the length of the layers which make up the base rod and it is most likely that the layers extend over the length of the shaft for the base rod since Cheng would most likely disclose if it didn't. JP '131 was used to show this teaching which is well known in the art. JP '131 was also used to show that twisting strength is a concern for golf club shafts and JP '131 disclosed a suitable value. The argument Cheng does not disclose 4 to 8 layers is disagreed with. Cheng discloses typically 10-20 layer as shown in figure 2 (Col. 2, Lns. 64-67). Clearly this discloses that other variations can be used in terms of layers. None-the-less the applicant's angled layer is formed by bonding two opposing angled layers together. Clearly in Cheng the layers of reference number 22c and 22b are bonded together due to being next to each other and can represent the angled layer of figures 4c and 4e. As such a 10 layered embodiment of Cheng would represent a 7 layer shaft as defined by the applicants layers. The argument that it is improper to combine the reference of Kusumoto with the reference of Jackson since Kusumoto discloses an intermediate layer with fibers perpendicular to a longitudinal axis and does not disclose a second angled layer is disagreed with. Kusumoto was not used to show these features but Jackson was. Kusumoto was used only to show that it is known to form a shaft with fibers in a prepreg sheet having a thickness of .06 mm. The argument that it is improper to combine the references of

Jackson and Preece since Jackson discloses fibers twisted together and not bonded together and Preece does not disclose strands is disagreed with. The fibers of Jackson are bonded together using a binder (Col. 2, Lns. 21-25). Preece discloses another suitable way to bond fibers together using prepreg plies.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steve Blau whose telephone number is (703) 308-2712. The examiner is available Monday through Friday from 8 a.m. to 4:30 p.m.. If the examiner is unavailable you can contact his supervisor Paul Sewell whose

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telephone number is (703) 308-2126. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0858.

Slb 17 January 2003


STEPHEN BLAU
PRIMARY EXAMINER